

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Prior Application: R. NAKATANI et al  
USSN 10/270,120  
Filed: October 15, 2002

Group Art Unit: 2652  
Examiner: C. Renner  
For: MAGNETORESISTANCE EFFECT ELEMENTS,  
MAGNETIC HEADS AND MAGNETIC STORAGE  
APPARATUS

INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

November 5, 2003

Sir:

In accordance with the duty of disclosure, the Applicants inform the Examiner of the documents cited during prosecution of the parent application, USSN 10/270,120.

The Applicants request the Examiner to initial and return a copy of the attached PTO-1449 form as an indication that the references have been considered.

Respectfully submitted,

  
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Date: November 5, 2003

FORM PTO-1449 (REV. 7-80)		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTY. DOCKET NO. ASA-350-07	SERIAL NO.
<b>LIST OF DOCUMENTS CITED BY APPLICANT</b> <i>(Use several sheets if necessary)</i>				APPLICANT R. NAKATANI et al	
				FILING DATE 11/05/03	GROUP 2652

**U.S. PATENT DOCUMENTS**

* EXAMINER INITIAL		DOCUMENT	DATE	NAME	CLASS	SUBCLASS	FILING DATE (If Appropriate)
	AA	5,206,590	04/27/93	Dieny et al			
	AB	5,159,513	10/27/92	Dieny et al			
	AC	5,134,533	07/28/92	Friedrich et al			
	AD	5,014,147	05/07/91	Parkin et al			
	AE	4,940,511	07/10/90	Fontana, Jr. et al			
	AF	4,896,235	01/23/90	Takino et al			
	AG	4,894,741	01/16/90	French			
	AH	4,825,325	04/25/89	Howard			
	AI	4,103,315	07/25/78	Hempstead et al			
	AJ	3,813,692	05/28/74	Brock et al			
	AK	2,683,856	07/13/54	Kornei			

**FOREIGN PATENT DOCUMENTS**

		DOCUMENT	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES <input type="checkbox"/> NO <input type="checkbox"/>
	AL	51-44917	04/16/76	Japan			<input type="checkbox"/> <input type="checkbox"/>
	AM	53-17404	06/08/78	Japan			<input type="checkbox"/> <input type="checkbox"/>
	AN	57-177573	11/01/82	Japan			<input type="checkbox"/> <input type="checkbox"/>
	AO	2-61572	03/01/90	Japan			<input type="checkbox"/> <input type="checkbox"/>
	AP	58-004931	01/12/83	Japan			<input type="checkbox"/> <input type="checkbox"/>

**OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, etc.)**

AR		Proceedings of the International Symposium on Physics of Magnetic Materials,
		April 8-11, 1987, pp. 303-306, Suezawa et al.
AS		Journal of Applied Physics, Vol. 66(9), pp. 4338-4344, Nov. 1989, "Changes in Soft Magnetic Properties of Fe Multilayered Films due to Lattice
		Mismatches between Fe and Intermediate Layers", Nakatani et al.
AT		Physical Review Letters, Vol. 61, No. 21, pp. 2472-2475 (1988),
		Baibich et al.

EXAMINER	DATE CONSIDERED
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\* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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**U.S. PATENT DOCUMENTS**

* EXAMINER INITIAL		DOCUMENT	DATE	NAME	CLASS	SUBCLASS	FILING DATE (If Appropriate)
	AA	5,390,061	02/14/95	Nakatani et al			
	AB	5,132,859	07/21/92	Andricados et al			
	AC	4,949,039	08/14/90	Gruenberg			
	AD	4,012,781	03/1977	Lin			
	AE	4,040,113	08/1977	Gorter			
	AF	4,142,218	02/1979	Gorter			
	AG	4,443,826	04/1984	Sawada et al			
	AH	4,780,848	10/1988	Daughton et al			
	AI	4,987,509	01/1991	Gill et al			
	AJ	5,027,243	06/1991	Gill et al			
	AK	5,216,560	06/1993	Brug et al			

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		DOCUMENT	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
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	AL	63-055714	03/10/88	Japan			<input type="checkbox"/>	<input type="checkbox"/>
	AM	01-213819	08/28/89	Japan			<input type="checkbox"/>	<input type="checkbox"/>
	AN	52-023925	02/23/77	Japan			<input type="checkbox"/>	<input type="checkbox"/>
	AO						<input type="checkbox"/>	<input type="checkbox"/>
	AP						<input type="checkbox"/>	<input type="checkbox"/>

**OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, etc.)**

AR	Physical Review B, Vol. 39, No. 10, pp. 6995-7002, "Conductive and Exchange Coupling of Two
	Ferromagnets Separated by a Tunneling Barrier", April 1989, Slonczewski.
AS	Pratt et al, "Giant Magnetoresistance with Current Perpendicular to the Layer Planes of Ag/Co and AgSn/Co Multilayers (invited)", J.APPL. PHYS.,
	Vol. 73, No. 10, May 15, 1993, pp. 5326-5331.
AT	S. Maekawa et al, "Electron Tunneling Between Ferromagnetic Films", IEEE
	TRANSACTIONS ON MAGNETICS, VOL. MAG-18, No. 2, March 1982, pp. 707-708.

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**U.S. PATENT DOCUMENTS**

* EXAMINER INITIAL		DOCUMENT	DATE	NAME	CLASS	SUBCLASS	FILING DATE (If Appropriate)
	AA	5,726,837	03/1998	Nakatani et al			
	AB	6,011,674	01/2000	Nakatani et al			
	AC	6,278,593	08/2001	Nakatani et al			
	AD	4,663,685	05/1987	Tsang			
	AE	6,483,677	11/2002	Nakatani et al			
	AF						
	AG						
	AH						
	AI						
	AJ						
	AK						

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		DOCUMENT	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	YES	NO
							YES		
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	AM						<input type="checkbox"/>	<input type="checkbox"/>	
	AN						<input type="checkbox"/>	<input type="checkbox"/>	
	AO						<input type="checkbox"/>	<input type="checkbox"/>	
	AP						<input type="checkbox"/>	<input type="checkbox"/>	

**OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, etc.)**

AR	Hirai, H. et al, "Josephson Device", Ohm Corp., Feb. 28, 1978, pp. 121-122.
AS	"Ferromagnetic Tunneling Junction", Vol. 15, No. 3, 1980, pp. 171-176, 198,
	and 781-782.
AT	

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